

Mark Your Calendar

Texas Pepper Conference

November 7-9, 2007

Palm Aire Hotel and Suites

Weslaco, Texas

Contact: Dr. Kevin Crosby

Ph: 956/968-5581

Email: k-crosby@tamu.edu

Texas Produce Convention

September 13-16, 2007

Contact: Ray Prewitt

Ph: 956/584-1681

In This Issue...

Mark Your Calendar

Mix It Up: Pair varietal resistance, chemicals and cultural practices to stem cucurbit diseases

A Hollow Feeling: Researchers seek solutions to watermelon disease affecting internal quality

Practicing Precision: Researchers demonstrate irrigation techniques on producers' farms

U.S. Spring Onion Acreage for Harvest Down...

Curly Top Description

Mix It Up:
Pair varietal resistance, chemicals and cultural practices to stem cucurbit diseases

By: Marni Katz
The Grower / March 2005

Varietal resistance, fungicides and cultural practices all play a role in cucurbits for controlling foliar diseases, such as powdery and downy mildew. Disease pathogens evolve, and growers must practice integrated management to maintain the control from fungicides and varietal resistance when conditions become favorable for these diseases.

Integrate varietal resistance with fungicides

Many cucurbit varieties have excellent inbred resistance against powdery mildew. But it's important to support that resistance with a reduced fungicide spray program as disease conditions or symptoms appear. Otherwise, pathogens that survive the varietal resistance are left to multiply, and eventually the population overcomes the plant's resistance.

According to McGrath, pathologist at Cornell University, "Powdery mildew fungus has been able to develop resistance to several valuable classes of fungicides and has a strong potential to also overcome resistance in varieties, so having both fungicides and resistant varieties raises the bar for that pathogen developing resistance to current controls."

That means that even in cucurbit varieties with a high level of resistance to powdery mildew, growers should continue to scout and spray for the disease when symptoms appear. The advantage of having both is that varietal disease resistance greatly improves the economics of

disease management by allowing you to stretch a seven-day spray interval to 14 days.

Epidemic can be either due to favorable conditions or an evolving organism that may be overcoming some level of varietal resistance when the pathogen is in high enough numbers. More than likely it is the two combined that contributed to this problem. At any rate, these conditions make a good statement for the importance of managing disease with resistance in mind to keep both fungicides and resistant varieties available for as long as possible.

Managing resistant varieties is also important

As a general principle, disease management should include several tactics and these tactics should change over time. This is especially true for fungicide use as well as the type of plant resistance used. Only an integrated approach will provide for the long-term management of foliar cucurbit diseases such as downy mildew. It also should include proper timing of sprays when conditions favor disease development. Research by Dr. Gerald Holmes at North Carolina State University suggests that, Curzate (cymoxanil) and Tanos (Cymoxanil plus famoxadone) have been effective when applied preventatively in his trials. Previcure Flex (propamocarb hydrochloride) makes an excellent rotational product, along with Gavel, which has zoxamide and mancozeb.

A Hollow Feeling: Researchers seek solutions to watermelon disease affecting internal quality

By: Doreen Muzzi
The Grower / April 2006

When Clemson University Extension horticulturist Gilbert Miller asked watermelon producers at a recent field meeting what caused hollow heart, the top answers were (sic) cold temperatures followed by warm conditions, excessive fertilizer and too much water.

The diversity of answers helped back Miller's research findings.

"No one really knows what causes some melons to develop hollow heart while other melons escape the disease," says Miller, who's based at the Edisto Research and Development Center in Blackville, SC.

What is hollow heart?

When the inner parts of a melon separate into distinct segments, they leave a hollow shape in the center of the fruit and a telltale crack in the fruit's outer shell. Hollow heart in melons doesn't negatively affect fruit quality. In fact, some say the melon is sweeter and better tasting. But it does decrease marketability.

"When there are a lot of melons on the market, a

load of hollow-heart melons is a load that's turned down," Miller says. "But when there are not a lot of melons on the market, that same load of hollow-heart melons may be accepted."

"Melons with hollow heart don't look pretty, but because the sugars are concentrated where the hollow heart begins, the melon is generally a little firmer there. I consider it good eating."

In most cases, hollow-heart levels are weather dependent, says Ed Kee, University of Delaware Extension vegetable crops specialist in Georgetown.

More severe incidents of the problem are reported in fields experiencing drastic changes between hot and cold temperatures or wet and dry conditions during fruit development.

"During these times, the melon is growing and enlarging so quickly that the cells in the center of the fruit just don't reproduce quickly enough to make it a solid

Continued on Next Page

Hollow Heart Continued

melon,” Kee says. “The growth outpaces the ability of the fruit to generate enough cells to make it a solid fruit.”

“We can’t pinpoint the exact reason because the cause of hollow heart is not completely understood,” Miller says. “Numerous environmental conditions can lead to it, as well as management conditions.”

“However, incidents of hollow heart are most often associated with a stressful time followed by a quick growing time. At critical times when environmental conditions influenced the growth of fruit, there may have been more than adequate nutrients, or warm conditions that followed cold nights, or wet, moist conditions following dry conditions.”

Varietal susceptibility

Horticulturists say hollow heart may be somewhat variety-

dependent, and those varieties that are prone to the disease one year may not be affected the following year. Some orange-and yellow-fleshed varieties tend to have more hollow heart than red-fleshed varieties.

In addition to varietal susceptibility, crop management practices, such as the excessive use of nitrogen, may influence hollow heart development.

“From a management standpoint, anything you can do to provide consistent amounts of water and nutrients to the plants should decrease disease levels,” Miller says. “That doesn’t mean you won’t have hollow heart, but anything that will reduce spurts of growth should reduce incidents of hollow heart.

“If a cold snap comes in followed by extremely warm conditions, the plant will grow extremely fast, and you’ll have hollow heart.”

Practicing Precision: Researchers demonstrate irrigation techniques on producers’ farms

By: Danielle Supercinski
Texas Water / Spring 2007

Wintergarden and High Plains researchers and county agents worked with 30 growers from various counties to conduct on-farm research demonstrations evaluating the extent to which limited irrigation practices may provide water savings and associated benefits.

These growers, Texas Agricultural Experiment Station researchers and Texas Cooperative Extension specialists and county agents have been working together since 2005 as part of the Precision Irrigators Network (PIN). The first stage of the PIN project was completed in September 2006, yielding preliminary water savings and establishing on-farm collaborations.

“Results from the first year of the study show tremendous possibility for water savings,” said Dr. Giovanni Piccinni, PIN project leader and assistant professor of crop physiology with the Experimental Station at Uvalde. “While some growers are doing a very good job using limited irrigation strategies, others are overwatering their crops. These are the growers we want to target next year to improve their water-use efficiency.”

PIN is educating agricultural producers about water conservation and irrigation management of various crops, including corn, cotton, grain sorghum, wheat and such winter vegetables as onions, spinach and other economically significant crops. The project’s main tasks include: (1) evaluating limited irrigation on agronomic and vegetable crops, (2) evaluating the use of subsurface rip irrigation for forage production, (3) validating the High Plains Potential Evapotranspiration Network, and (4) developing and delivering educational programs.

This project was built upon ongoing success achieved through the North Plains Potential Evapotranspiration Network (NPET), which provides updated data

agricultural producers can use to precisely apply the amount of water that meets crop needs, thus resulting in water conservation. In the past, translating new research discoveries into farming practices were often stalled because of the perception that research results do not conform to on-farm reality, Piccinni said. Therefore, PIN demonstration trials are carried out on producer’s fields in the Wintergarden and High Plains regions, rather than on research centers, so producers can be involved in the research as well.

“We involve the producers in the research project by developing strategies specific for his/her farming system,” Piccinni said. “By being involved firsthand in the research process, the producers are more likely to ‘buy’ into it and continue to apply newly developed strategies on his/her field, giving immediate adoption of research-proven practices.”

“Furthermore, we envision that neighboring growers will be more likely to implement new management practices demonstrated on nearby farms rather than those shown only on small Experiment Station plots.”

PIN strives to achieve these water savings through producer education, which results in the adoption of advanced technologies and conservation practices. Preliminary studies suggest that, based on 90,000 acres of irrigated land, widespread use of deficit irrigation practices have the potential to save up to 60,000 acre-feet or 19,530 million gallons of water annually in the Wintergarden region, and as much as 413,000 acre-feet of water each year in the Lower Rio Grande Valley (TWDB report 347, August 2001). In the High Plains region, the sum of the 12 pro-

Continued on Next Page

Practicing Precision Continued

ducer fields totaled water savings (water pumped) of 16,715 acre-inches for the 1,900 acres of production monitored. The average water savings per corn producer was 8.7 inches per acre annually.

Studies conducted through this PIN project serve as a baseline for potential water savings and serve as a focus for Extension educational programs. A second project, which continues using PIN project data, began in September 2006, and researchers and county agents will continue working on-farm with agricultural producers to evaluate crop water needs and uses to further test irrigation methods to find the most water-efficient methods and amounts.

“We would like total participation of the Wintergarden and High Plains producers,” Piccinni said. “By joining the Precision Irrigators Network, producers can achieve water savings resulting in increased profits. As always, when we talk about limited irrigation, the bottom line is we want to ‘make every drop count.’”

PIN, as well as the continuation project, was funded by the Texas Water Development Board. Additional support was provided by the Rio Grande Basin Initiative through the Texas Water Resources Institute, Texas Agricultural Experiment Station, Texas Cooperative Extension, San Antonio Water Systems and Edwards Aquifer Authority.

U.S. Spring Onion Acreage for Harvest Down 9%; Estimate of Production Down 8% Record High Market Price Bids; Market Outlook Bright

Jose G. Peña

Ag-Eco News / April 2007

The Spring onion harvest in Texas opened in late March to excellent price bids and the market outlook appears bright as onion supplies are down significantly. Bad weather in the U.S. and Mexico which began last summer affected storage and spring onion plantings. Reduced storage/spring onion production combined with worldwide shortages as a result of continued adverse winter weather, has reduced supplies and pushed onion prices to record levels. White jumbos were trading at record high prices of about \$55/50 lb sack this past week, compared to \$7-\$8/50 lb sack a year ago at this time. Yellow jumbos were trading for about \$26-\$28/50 lb compared to \$6-\$7/50 lb sack a year ago at this time. Super Colossals were trading for about \$35.50/50 lb sack this past week, compared to about \$10/50 lb sack a year ago at this time. The excellent market should extend through the U.S. spring onion season.

According to USDA-NASS April 3, 2007 Vegetables Report, spring onions are expected to be harvested from 31,600 acres in 2007, down 8.7 percent from 2006.

Spring Onion Production Down

Early estimates of spring onion production, based on estimates of acres for harvest by region, and estimated yields (GA and TX) and average yields of the past 10 years (AZ and CA), at 1.028 billion pounds is down 7.7 percent from last year's crop of 1.113 billion pounds and down from 11.2 percent from 2005's crop of 1.158 billion pounds when prices improved.

Harvest in Texas

The harvest from the lower Rio Grande Valley of Texas is slightly behind schedule, after a slow crop start, as a result of cloudy, cold, wet weather on young, tender spring onion plants in south Texas during January '07. As of Monday, April 9, 2007, only 564 loads had been shipped from the lower Rio Grande, compared to 1,688 at this same time a

year ago. Georgia, whose harvest officially started on April 10, actually began shipping shortly after March 20, 2007, as farmers attempted to capture excellent U.S. spring onion market prices.

Spring Onion Production in Georgia and Texas

Combined production in Georgia and Texas is forecast at 617.4 million pounds, 16 percent below last year. In Texas, significantly reduced plantings, lower acres for harvest and a production forecast of 329.4 million pounds, down 19.4 percent from 410.4 million pounds produced last year, indicates that Texas will drop to second place, behind California's production estimate of 353.4 million pounds. The production estimate for Texas currently accounts for about 31.2 percent of the 1.028 billion pound, U.S. spring onion production estimate, compared to 36.9 percent of last year's production of 1.113 billion pounds.

Acreage Down

Spring onion plantings decreased across the U.S. spring onion belt, except in Arizona, which planted 1,200 acres, up 20% from 1,000 acres planted last year. Plantings in Texas dropped to 12,500 acres, down 29.4 percent from 17,700 planted last year. So far, except for increased irrigation requirements due to the very dry fall/winter weather and a slightly higher incidence of disease and potential flower stem problems from the effects of higher humidity levels and the cold, cloudy weather in January, the crop in Texas has experienced a relatively good growing environment this season. The situation could change, especially as the potential effects of the recent adverse weather are manifested and as the season progresses.

The estimate of acreage for harvest in the lower Rio Grande Region of Texas at 8,200 acres is down 29.9

Continued on Next Page

U.S. Spring Onion Continued

percent from 11,700 acres harvested last year.

The estimate of acres for harvest in the Laredo/Wintergarden region at 2,600 acres is down 900 acres from 3,500 acres harvested last year. Hail in parts of the Winter Garden of Texas during early April caused some damage and while the April 7-8, 2007 cold spell slowed growth progress, the cold spell does not appear to have caused major problems.

Spring onion plantings in the Imperial Valley of California, whose harvest competes directly with produc-

tion in the Winter Garden of Texas, experienced some similar cold weather problems.

Supplies Down

While 800-900 loads of storage onion supplies remain stored in the Washington State, storage onion supplies are, for all practical purposes, exhausted. The market will be driven by reduced spring onion supplies. Overall, the spring onion industry remains very optimistic about the market outlook.

Curly Top

Description appearing in-
Potato Country / 2005

Causal Agent:

Curly Top Virus (CTV)
Syn: Beet Curly Top Virus (BCTV)
Many strains have been reported

Vector:

Beet Leafhopper (*Circulifer tenellus* and *C. opacipennis*)

Distribution:

Canada, Mediterranean Region, Mexico, USA

Symptoms:

Typically, infected plants are erect and stunted in appearance, and severely infected seedlings may die. Leaves thicken with their margins rolling upward as the petioles curve downward. Later, the leaves turn a dull yellow with an accompanying purpling of their veins. Very few fruit are produced and those that set before infection ripen prematurely. Fruit affected by the disease are dull, small and wrinkled with a dried-out appearance.

Conditions for Disease Development:

This virus has a wide host range of 300 species from which

it can be transmitted in a persistent manner only by the beet leafhopper. Sugar beet is a common host for both the virus and leafhoppers. Virus-carrying leafhoppers can be moved by wind into adjacent tomato fields and can also migrate from their overwintering weedy hosts to tomato fields in the spring. Patterns of infection in the field indicate a "raining" of virus-carrying leafhoppers. Little or no secondary spread occurs within a tomato field. Other common hosts for this virus are watermelon, cantaloupe, squash, pepper, spinach and beans.

Control:

Spraying insecticides on weeds to control leafhoppers, as well as avoiding beet fields and range land has reduced losses from this disease. Double row planting of processing tomatoes has been used successfully in areas where CTV is present, though it is not know whether this practice actually discourages leafhoppers from visiting plants or whether it allows more individuals to escape infection. Spraying tomato fields for leafhoppers will not control curly top.

Check for updates on our web site:

<http://aggie-horticulture.tamu.edu>